

EXHIBIT 25



TECHNOLOGY

Google Parent Company Spins Off Self-Driving Car Business

By DAISUKE WAKABAYASHI DEC. 13, 2016

SAN FRANCISCO — Google's self-driving car is ready to take the wheel.

Google's parent company, Alphabet, said on Tuesday that its autonomous vehicle project was spinning off from its research lab X and would operate as a stand-alone company under the name Waymo.

Alphabet's decision to spin out Waymo is a signal that the company thinks its self-driving technology has advanced beyond research project status and is ready for commercialization.

Autonomous vehicles are a hotly contested field of technology, pursued by other tech giants, promising upstarts and traditional automakers — all who see the potential of self-driving cars to upend the automobile industry.

Advancements in sensor technology coupled with breakthroughs in machine learning — the ability of computers to learn from vast amounts of data and improve over time — mean driverless cars (essentially supercomputers on wheels) could become a regular sight on the roads over the next few years.

“As we look at this space and the opportunities ahead of us, we see so much,” said John Krafcik, chief executive of Waymo. “We’re a new company, but we’ve been at this for a while.”

Waymo joins the roster of Alphabet companies, which includes Google. Mr. Krafcik said the new arrangement allows Waymo to tap into the infrastructure and resources of Alphabet with the feel of an independent venture-backed company. He said Waymo's technology could have uses as varied as ride-sharing services and long-haul trucking, but he did not lay out a specific business strategy.

Alphabet was an early technological leader in the field, but its efforts to establish a business around the technology have fallen short. Since 2009, Alphabet's self-driving cars have logged 2.3 million driverless miles — the equivalent of more than 400 round-trip drives from New York to Los Angeles — on test drives in California, Arizona, Texas and Washington state. Waymo said it completed the world's first fully driverless ride on public roads last year in Austin, Texas, with a blind passenger in a car without a steering wheel or pedals.

Safely ensconced in Google's so-called moonshot factory, the self-driving car project did not face the type of financial pressure to commercialize its technology that a start-up or a company without Google's resources would have. Despite its head start, other companies have incorporated autonomous driving technology into their products and services more quickly.

Tesla Motors has a semiautonomous feature called Autopilot that can take over for the driver for long stretches, and it is preparing for its newest cars to go fully autonomous as early as next year. Tesla also announced its intention to start a ride-hailing service once its driverless car technology is ready.

The ride-hailing service Uber is already testing self-driving cars to pick up customers in Pittsburgh with a person on standby in the driver's seat. Lately, its driverless cars have been spotted on the streets of San Francisco.

At the same time, the list of companies with an eye on the space is growing. Apple has hundreds of employees working on autonomous car technology, and carmakers are snapping up tech talent. General Motors acquired the self-driving car start-up Cruise Automation this year, and Ford Motor is expanding aggressively in Silicon Valley with a research and development center.

For Google, the goal was to design a vehicle that is responsible for 100 percent of the driving. The company said this approach was more difficult and would take more time. However, Google said it was ultimately safer than semiautonomous vehicles, which may require a driver to take back control of the car without awareness of the surroundings.

Waymo said its ultimate goal was to equip its driverless system on cars without steering wheels or pedals because it didn't want humans to feel as if they needed to monitor the vehicle. However, government regulations currently require a vehicle to have steering wheels and pedals.

In August 2015, Google brought in Mr. Krafcik, a former Hyundai Motor executive, to lead the project and bring it closer to commercialization. It has also lost crucial personnel on the project, sometimes to competitors.

One of the project's founders, Anthony Levandowski, left Google in 2015 and started Otto, an autonomous trucking company that was acquired this year by Uber. He now oversees Uber's driverless car operations. Chris Urmson, who led the project before Mr. Krafcik and served as its chief technology officer until his departure in August, is now working on his own self-driving car company, according to the technology site Recode.

"Google has struggled to find a way to come to market," said Roger Lanctot, an associate director at research firm Strategy Analytics. "We've come to the point where Google needs a return."

The challenge for Google is to devise a successful strategy for making money from self-driving cars. Unlike Uber, it doesn't have a ride-hailing service that can generate fares — at least not yet. And unlike Tesla or other automakers, it doesn't have an auto manufacturing background to build cars or a network to sell them. Creating its own car would also require a significant investment to build a factory and establish a supply chain.

It could work with automakers to supply autonomous driving systems — akin to how Google provides the Android operating system software to smartphone

manufacturers. However, car companies are apprehensive about losing control of that crucial technology to Google.

This year, Google reached a deal with Fiat Chrysler to equip its automated driving systems in 100 Pacifica minivans to try to make it easier for the technology to be installed on an assembly line.

“We’ve been really clear that we’re not a car company,” Mr. Krafcik said. “We’re not in the business of making better cars. We’re in the business of making better drivers.”

The technology site The Information reported earlier that Waymo was considering building a ride-sharing network with the minivans. When asked about that possibility, Mr. Krafcik said: “We’ll see.”

It’s not just about money. It’s also about data. Without a way of getting its systems on the road through a ride-sharing network or an automaker, Google may struggle to collect valuable on-the-road information — a crucial part of helping its driving systems learn and improve over time.

Dmitri Dolgov, who oversees the development of self-driving technology for Waymo, said the next step for his team would be to make the ride for driverless cars smoother and more natural, build out the map system to allow it to go to more places, and handle different weather conditions.

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